Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently amended) A method for determining the biological effect and/or activity of at least one drug, chemical substance and/or pharmaceutical composition, comprising the steps of:
(a) obtaining a biological sample A containing DNA from at least one individual, tissue, cell or other biological material containing DNA, which was exposed to said at least one drug, chemical substance and/or pharmaceutical composition;
(b) obtaining a biological sample B containing DNA from at least one individual, tissue, cell or other biological material containing DNA, which was not exposed to said at least one drug, chemical substance or pharmaceutical composition;
(c) ~~analysing~~ analyzing the level of cytosine methylation at chosen sites of the DNA contained in the samples A and B;
(d) selecting the sites which are differentially methylated between the DNA in samples A and B,
whereby a knowledge base is generated; and
(e) concluding from the said knowledge base on the biological effect and/or activity of said at least one drug, chemical substance or pharmaceutical composition.

2. (Original) Method according to claim 1, comprising that the biological sample is obtained by means of a biopsy, by means of an operation on an individual, by means of a dissection, derived from a preserved biological sample, collected from body fluid(s) and/or collected directly from the environment.

3. (Currently amended) Method according to claim 1 ~~or 2~~, ~~characterised~~ characterized in that the biological sample comprises a ~~eucaryotic~~ eukaryotic and/or ~~procaryotic~~ prokaryotic cell line, a biopsy sample, blood, sputum, ~~faeces~~ feces, urine, cerebral

liquid, tissue embedded in paraffin, tissue derived from eyes, intestine, brain, heart, ~~prostata~~ prostate, kidney, lung, breast or liver, histological samples or a combination thereof.

4. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 3~~, ~~characterised~~ characterized in that said biological sample is obtained from biological material of healthy and/or diseased individuals.

5. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 4~~, ~~characterised~~ characterized in that the biological samples A and B are obtained from the identical individual, tissue, cell or other biological material.

6. (Currently amended) Method according to claim 5, ~~characterised~~ characterized in that the biological samples A and B are taken before, during and/or after onset of a treatment with said drug, chemical substance or pharmaceutical composition.

7. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 6~~, further comprising the step of isolating DNA from the said samples before ~~analysing~~ analyzing the level of cytosine methylation at chosen sites in said isolated DNA.

8. (Currently amended) Method according to claim 7, ~~characterised~~ characterized in that the isolation of said DNA contained in said biological sample comprises isolating subcellular compartments, organelles, macromolecular structures and multiprotein complexes, partial or complete preparation of the DNA and/or mRNA, reverse transcription or partial digestion of the material with an enzyme selected from proteases, RNAses and/or DNAses or combinations thereof.

9. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 8~~, ~~characterised~~ characterized in that the analysis of the level of cytosine methylation comprises chemical treatment with bisulphite, hydrogen sulphite or disulphite, polymerase chain reaction (PCR), ~~hybridisation~~ hybridization analyses, sequencing, mass

spectrometry and fluorescent, enzymatic, radioactive, dye and/or antibody ~~labelling~~ labeling.

10. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 9~~, ~~characterised~~ characterized in that all potential methylation sites of the DNA are ~~analysed~~ analyzed.

11. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 10~~, ~~characterised~~ characterized in that the level of at least two cytosine methylation sites is ~~analysed~~ analyzed in parallel.

12. (Currently amended) Method according to claim 11, ~~characterised~~ characterized in that the level of at least 100 cytosine methylation sites is ~~analysed~~ analyzed in parallel.

13. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 12~~, ~~characterised~~ characterized in that the methylation sites are located in methylation relevant regions of the DNA comprising complete genes and/or promoters, introns, first exons and/or enhancers.

14. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 13~~, ~~characterised~~ characterized in that the methylation sites are located in methylation relevant regions of genes related with unwanted side effects of medicaments~~,~~; cancers~~,~~; dysfunctions, damages or diseases of the central ~~nerval~~ nervous system (CNS)~~,~~; aggressive symptoms or behavioural disorders~~,~~; clinical, psychological and social consequences of brain injuries~~,~~; psychotic disorders and disorders of the personality~~,~~; dementia and/or ~~associates~~ associated syndromes~~,~~; cardiovascular diseases~~,~~; malfunctions or damages, diseases, malfunctions or damages of the gastrointestine~~,~~; diseases, malfunctions or damages of the respiratory system~~,~~; injury, inflammation, infection, immunity and/or reconvalescence, diseases, malfunctions or damages as consequences of modifications in the developmental process~~,~~; diseases,

malfunctions or damages of the skin, muscles, connective tissue or bones~~,~~; endocrine or metabolic diseases~~,~~; malfunctions or damages~~,~~; headache~~,~~; and sexual malfunctions or combinations thereof.

15. (Currently amended) Method according to claim 14, ~~characterised~~ characterized in that the methylation sites are located in methylation relevant regions of genes related with leukemia, head and neck cancer, Hodgkin's disease, gastric cancer, prostate cancer, renal cancer, bladder cancer, breast cancer, Burkitt's lymphoma, Wilms tumor, Prader-Willi/Angelman syndrome, ICF syndrome, dermatofibroma, hypertension, pediatric neurobiological diseases, autism, ulcerative colitis, fragile X syndrome, and Huntington's disease.

16. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 15~~, wherein said ~~analysed~~ analyzed methylation sites are disease specific and/or ~~personalised~~ personalized.

17. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 16~~, ~~characterised~~ characterized in that the selection is based on the result of at least two individual rows of analyses.

18. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 17~~, ~~characterised~~ characterized in that the selection is performed in such a way as to give a knowledge base comprising only one set of selected sites.

19. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 17~~, ~~characterised~~ characterized in that the selection is performed in such a way as to give a knowledge base comprising different classes, in particular quality classes of selected sites.

20. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 19~~, ~~characterised~~ characterized in that the selection is at least partially performed

automatically by means of a suited automate, such as a computer device.

21. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 20~~, ~~characterised~~ characterized in that at least two sites are selected in parallel.

22. (Currently amended) Method according to claim 21, ~~characterised~~ characterized in that at least 100 sites are selected in parallel.

23. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 22~~, ~~characterised~~ characterized in that all or a part of the sites of the knowledge base are used for the conclusion.

24. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 23~~, ~~characterised~~ characterized in that additional information about the biological sample is used for the conclusion.

25. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 24~~, ~~characterised~~ characterized in that the conclusion is based on the result of at least two individual rows of analyses.

26. (Currently amended) The method according to ~~any of claims~~ claim 1 ~~to 25~~, characterized in that the conclusion is performed by a computer system.

27. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 26~~, ~~characterised~~ characterized in that steps a) to d) are repeated.

28. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 27~~, ~~characterised~~ characterized in that the identical biological sample, different biological samples or a combination thereof is used in steps a) and/or b).

29. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 26~~,

~~characterised~~ characterized in that steps c) to d) are repeated.

30. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 29~~, ~~characterised~~ characterized in that said method is repeated ~~for~~ at least 5 to 50 times.

31. (Currently amended) Method according to ~~any of claims~~ claim 1 ~~to 30~~, ~~characterised~~ characterized in that said method is at least partially performed by means of a suited automate, for example a robot and/or a computer system.

Claims 32-34 (Canceled).

35. (Currently amended) Biologically effective and/or active drug, chemical substance and/or pharmaceutical composition, obtained according to a method according to ~~any of claims 32 to 33~~ claim 1.

36. (Original) Use of a biologically effective and/or active drug, chemical substance and/or pharmaceutical composition according to claim 35 for the treatment of a disease and/or medical condition.

37. (Currently amended) Use according to claim 36, wherein said disease and/or medical condition is related to unwanted side effects of medicaments, cancers, dysfunctions, damages or diseases of the central ~~nerval~~ nervous system (CNS), aggressive symptoms or ~~behavioural~~ behavioral disorders, clinical, psychological and social consequences of brain injuries, psychotic disorders and disorders of the personality, dementia and/or ~~associates~~ associated syndromes, cardiovascular diseases, malfunctions or damages, diseases, malfunctions or damages of the gastrointestine, diseases, malfunctions or damages of the respiratory system, injury, inflammation, infection, immunity and/or reconvalescence, diseases, malfunctions or damages as consequences of modifications in the developmental process, diseases, malfunctions or damages of the skin, muscles, connective tissue or bones, endocrine or metabolic diseases, malfunctions or damages, headache, and sexual malfunctions

or combinations thereof.

38. (Original) Use according to claim 37, wherein said disease and/or medical condition is leukemia, head and neck cancer, Hodgkin's disease, gastric cancer, prostate cancer, renal cancer, bladder cancer, breast cancer, Burkitt's lymphoma, Wilms tumor, Prader-Willi/Angelman syndrome, ICF syndrome, dermatofibroma, hypertension, pediatric neurobiological diseases, autism, ulcerative colitis, fragile X syndrome, and Huntington's disease.

39. (Currently amended) ~~Method~~ A method for the treatment of a disease and/or medical condition, comprising
a) ~~providing~~ determining at least one biologically effective and/or active drug, chemical substance and/or pharmaceutical composition ~~according to~~ by means of a method according to ~~any of claims~~ claim 1 ~~to 32~~; and
b) ~~installing~~ providing a treatment for said disease and/or medical condition comprising application of said at least one biologically effective and/or active drug, chemical substance and/or pharmaceutical composition to ~~the~~ a patient in need.

40. (Currently amended) Method according to claim 39, wherein said specific treatment is disease and/or patient specific ~~and/or personalised~~.

41. (Currently amended) ~~Use of a~~ A method according to ~~claims~~ claim 39 ~~and 40 for the~~ wherein said disease and/or medical condition is selected from treatment of unwanted side effects of medicaments~~,~~; cancers~~,~~; dysfunctions, damages or diseases of the central ~~nerval~~ nervous system (CNS)~~,~~; aggressive symptoms or ~~behavioural~~ behavioral disorders~~,~~; clinical, psychological and social consequences of brain injuries~~,~~; psychotic disorders and disorders of the personality~~,~~; dementia and/or ~~associates~~ associated syndromes~~,~~; cardiovascular diseases~~,~~; malfunctions or damages, diseases, malfunctions or damages of the gastrointestine~~,~~; diseases, malfunctions or damages of the respiratory system~~,~~; injury, inflammation, infection, immunity and/or reconvalescence, diseases, malfunctions or damages as consequences of

modifications in the developmental process~~,~~; diseases, malfunctions or damages of the skin, muscles, connective tissue or bones~~,~~; endocrine or metabolic diseases~~,~~; malfunctions or damages~~,~~; headache~~,~~; and sexual malfunctions or combinations thereof.

42. (Currently amended) ~~Use~~ A method according to claim ~~41~~ 39 ~~for the treatment of~~ wherein said disease is selected from leukemia, head and neck cancer, Hodgkin's disease, gastric cancer, prostate cancer, renal cancer, bladder cancer, breast cancer, Burkitt's lymphoma, Wilms tumor, Prader-Willi/Angelman syndrome, ICF syndrome, dermatofibroma, hypertension, pediatric neurobiological diseases, autism, ulcerative colitis, fragile X syndrome, and Huntington's disease.